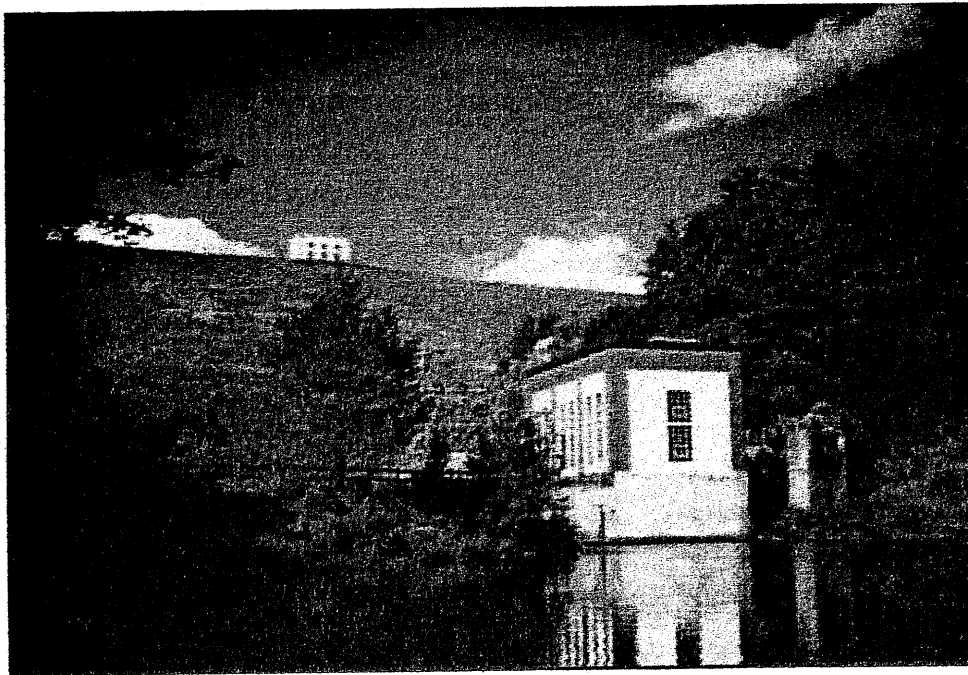


**BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION**

**APPLICATION FOR NEW LICENSE,  
MAJOR WATER-POWER PROJECT,  
FOR THE**

**WATERBURY HYDROELECTRIC PROJECT  
FERC No. 2090**



**VOLUME 1**

**Executive Summary  
Initial Statement  
Verification Statement  
Exhibits A through H**

**GREEN MOUNTAIN POWER CORPORATION**

**August 27, 1999**

## **EXHIBIT E(5)**

### **Recreational Resources**

**(5) Recreational Resources**

The Waterbury Project is located in central Vermont in the towns of Waterbury, Washington County and Stowe, Lamoille County. The reservoir is the ninth largest body of water (at normal pond elevation) in the State and is an integral recreation resource to this part of the State. GMP's current Federal Energy Regulatory Commission (FERC) license requires the company to allow public access to Project waters for boating and other recreational use. To facilitate this use between Memorial Day and Labor Day, GMP voluntarily maintains the reservoir water level at 589.5 feet USGS, +/- one foot. Extensive land ownership by the State of Vermont limits shoreline development along the reservoir and the banks of the Little River. Except for the dam site, limited private residential development in the easterly arm of the reservoir, and State park facilities (Little River State Park and Waterbury Center State Park), the remainder of the shoreline is undeveloped. Private development in the Project vicinity is concentrated in the southeast portion of the reservoir and the southerly end of the Little River.

Waterbury Reservoir and surrounding lands provide varied recreational opportunities which are available to the public. Camping, boating (motorized and non-motorized), fishing, swimming, hiking, biking, water-skiing, snowmobiling, and cross-country skiing are among the opportunities available within the Project reservoir and along the Little River. Access is well dispersed throughout the entire Project area and allows for public use of the Project area waters. There are numerous un-managed camping, fishing, and swimming sites around the Waterbury Reservoir perimeter, some accessible by road, but most by boat or foot. Hiking trails are also available in the State Park and the Vermont Association of Snow Travelers (VAST) trail network runs through parts of the state forest and is used for hiking, hunting, biking, and snowmobiling. Developed recreation areas include 100 campsites, a swimming beach, and a gravel surface boat launch at Little River State Park as well as a day-use picnic area and hard surface boat ramp at Waterbury Center State Park. There are also gravel surface boat launches adjacent to the dam and at the Blush Hill Road site south east of the dam. A carry-in boat launch is located at the north end of the reservoir at the Moscow Access Site.

To try and make motorized and non-motorized uses compatible, two 5 mph/no wake zones and two slalom ski courses have been designated on the reservoir. One no wake zone is located at the north end of the reservoir and the other is located at the east end of the reservoir near Waterbury Center. Slalom course number one is located in the northern no-wake zone just south of the mouth of Cotton Brook. The buoys for this course can be lowered below the water surface when not in use. Slalom course number two is located westerly of the Blush Hill Road access point and is fixed permanently on the water surface. An alternate course number two is located near the dam just south of the State Park campground.

Access to the Project area is provided by several primary and secondary roads (Figure E(5)-1). Route 100 passes through the Project study area near Waterbury Center and provides access to the eastern portion of the reservoir by means of several secondary roads. Blush Hill Road extends from Route 100 northerly to the Blush Hill Road access area on the south shore of the reservoir. The access road for the Waterbury Center State Park also intersects with Route 100. Gregg Hill Road runs from Route 100 and parallels the north side of the east arm and the east side of the north arm of the reservoir. Several minor roads and trails extend from the Gregg Hill Road to various points along the shoreline. Moscow/Cotton Brook Road provides access from Route 100 to the northern end of the reservoir at the Moscow carry-in site. Little River Road extends northerly from Route 2 along the west bank of the Little River and provides access to the Waterbury Dam and boat launch area as well as to the Little River State Park. Several parking areas and trail heads are located along this road, providing access to both the river and Mount Mansfield State Forest property. Access across the river from this road is limited to two routes: a hard bottom river ford and a former snowmobile bridge.

The Little River below Waterbury Dam to its confluence with the Winooski River offers angling and non-motorized boating opportunities. The river is a local fishing spot for trout anglers and has potential for a cold water fishery. The river also provides limited flatwater and whitewater (Class I/II) opportunities.

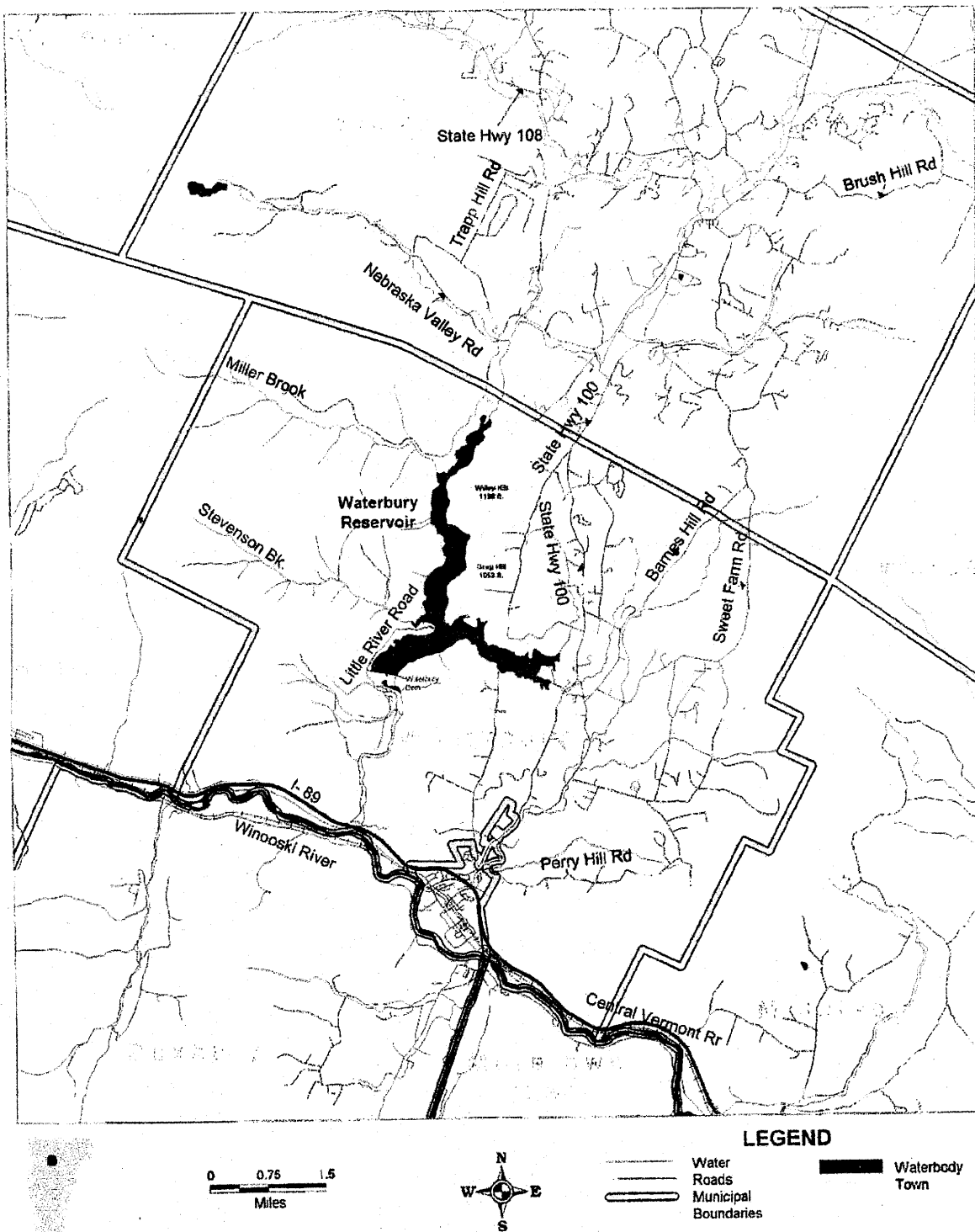


Figure E(5)-1 Road system in the vicinity of Waterbury Reservoir

(i) **Description of Existing Recreation Facilities**

During the consultation process, the State of Vermont asked GMP to complete a recreation study to examine the potential effects of water level and flow management on recreational use of Waterbury Reservoir and downstream Little River. The purposes of the study were to: use existing data to describe existing recreational facilities and uses associated with Waterbury Reservoir; to provide a general analysis of the relationship between water level management (WLM) practices associated with hydroelectric generation and recreational use; and to outline possible approaches to avoiding or mitigating the effects of WLM effects, if appropriate.

Waterbury Reservoir

General descriptions of the facilities adjacent to Waterbury Reservoir are provided below. A complete list of the facilities is contained in Table E(5)-1, and their locations are shown on Figure E(5)-2.

There are five boat launches on the shores of the reservoir (Figure E(5)-3). Four of the launches accommodate the use of boat trailers, while the other one is a carry-in launch. The launches are dispersed along the reservoir shoreline, providing boating access to the entire reservoir. Two of the five boat launches are within State park boundaries and require an entrance fee.

The one commercial campground along the reservoir shoreline is the State-owned and operated Little River State Park located on the west shore just north of the dam. The park is open from Memorial Day weekend to Columbus Day and provides various overnight accommodations (lean-to, tent, RV camping) as well as hiking trails, swim area, and gravel surfaced boat launch. The other developed recreation area at the reservoir, Waterbury Center State Park, is located in the easterly most portion of the reservoir near Waterbury Center. This park is operated from Memorial Day weekend to Labor Day weekend and provides a swim area, hard surface boat launch and numerous picnic tables and grills.

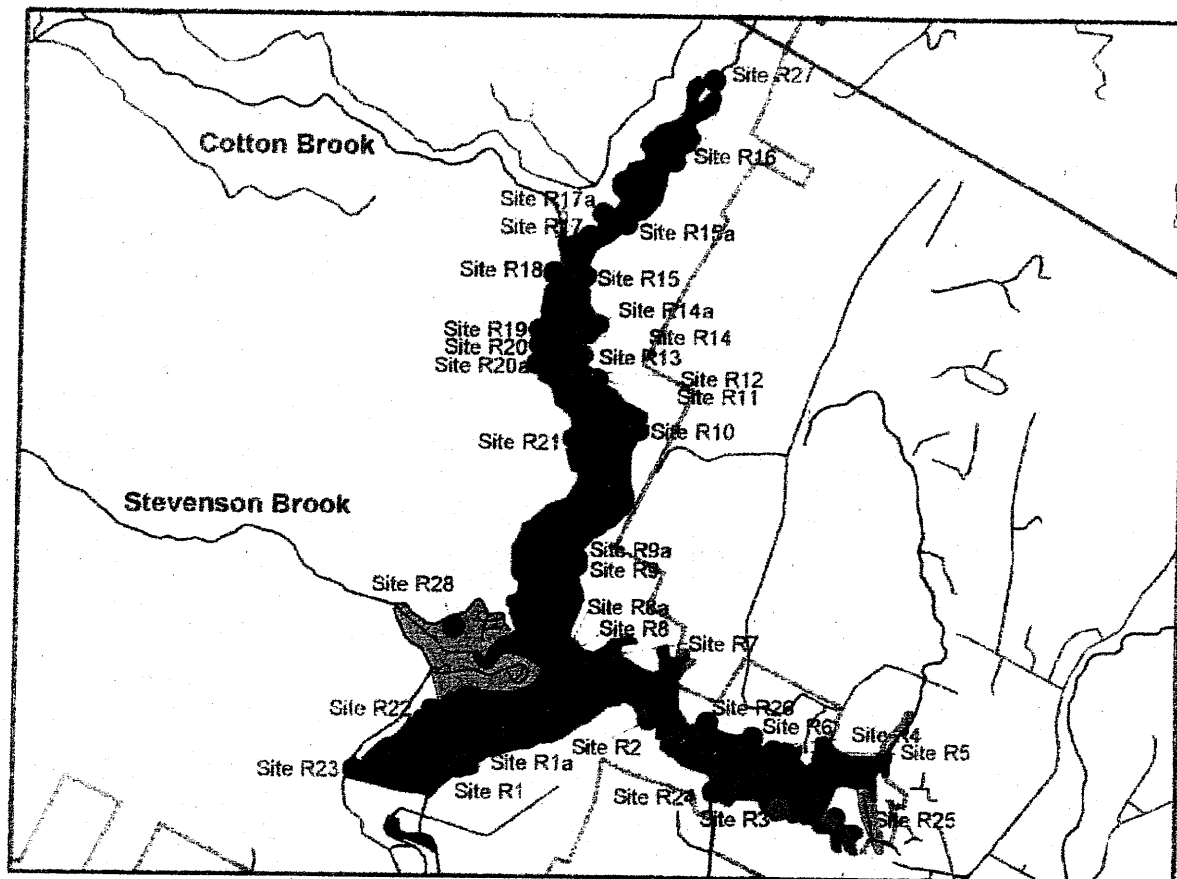
Two water-ski slalom courses are maintained on the reservoir. One course is located in the northern arm just south of Cotton Brook. The course consists of a two rows of buoys which can be lowered below the water surface when not in use. The second course is located westerly of the Blush Hill Road access site. These two rows of buoys are fixed permanently on the water surface. An alternate site for the Blush Hill course is located just south of the State Park campground (Figure E(5)-4).

There are 29 unmanaged, primitive campsites scattered around the shoreline of the reservoir. Most of the sites are accessible by boat only, though a few on the north shore of the east arm also have footpath access from the Gregg Hill Road. Nearly every site consists of a fire ring and tent site, and a few also include primitive tables and privies.

One very popular informal swimming area is located on the north shore of the east arm opposite the Blush Hill Road boat launch area. This site, referred to as Sunbather's Rock in the inventory, consists of a large rock outcrop which is accessed by boat or trail off the Gregg Hill Road. Other areas around the reservoir are also suitable for swimming and receive public use.

**Table E(5)-1****Waterbury Reservoir shoreline recreation facilities**

Site #	Site Type	Boat Launch	Camping	Swimming Area	Picnic Area	Access
R1	campsite		X			water
R1A	campsite		X			water
R2	campsite		X			water
R3	campsite		X			water
R4	campsite		X			water/footpath
R5	campsite		X			water/footpath
R6	campsite		X			water
R7	campsite		X			water
R8	campsite		X			water
R8A	campsite		X			water
R9A	campsite		X			water
R10	campsite		X			water
R11	campsite		X			water
R12	campsite		X			water
R13	campsite		X			water
R14	campsite		X			water
R14A	campsite		X			water
R15	campsite		X			water
R15A	campsite		X			water
R16	campsite		X			water
R17	campsite		X			water/footpath
R17A	campsite		X			water/footpath
R18	campsite		X			water
R19	campsite		X			water
R20	campsite		X			water
R20A	campsite		X			water
R21	campsite		X			water
R22	campsite		X			water
R23	dam boat launch	gravel				road
R24	Blush Hill boat launch	gravel				road
R25	Waterbury Center State Park	concrete		X	X	road
R26	Sunbather's Rock			X		water/footpath
R27	Moscow canoe access	carry-in				road
R28	Little River State Park	gravel	101 sites	X		road



#### LEGEND

- Waterbury Reservoir Remote Campsites and Access Points
- ▨ State Park Areas
- Roads
- Surface Waters
- Extent of Public Lands



0.6 0 0.6 1.2 1.8 2.4 Miles

Point data collected by E/P/O on contract with the Green Mountain Power Corp.  
 Remaining digital data supplied by the VT Agency of Natural Resources.  
 Digital data creation and map layout provided by the Information Management Services Department  
 of the VT Agency of Natural Resources - August, 1998.

Figure E(5)-2 Remote campsites and access points at Waterbury Reservoir. Descriptions are in Table E(5)-1

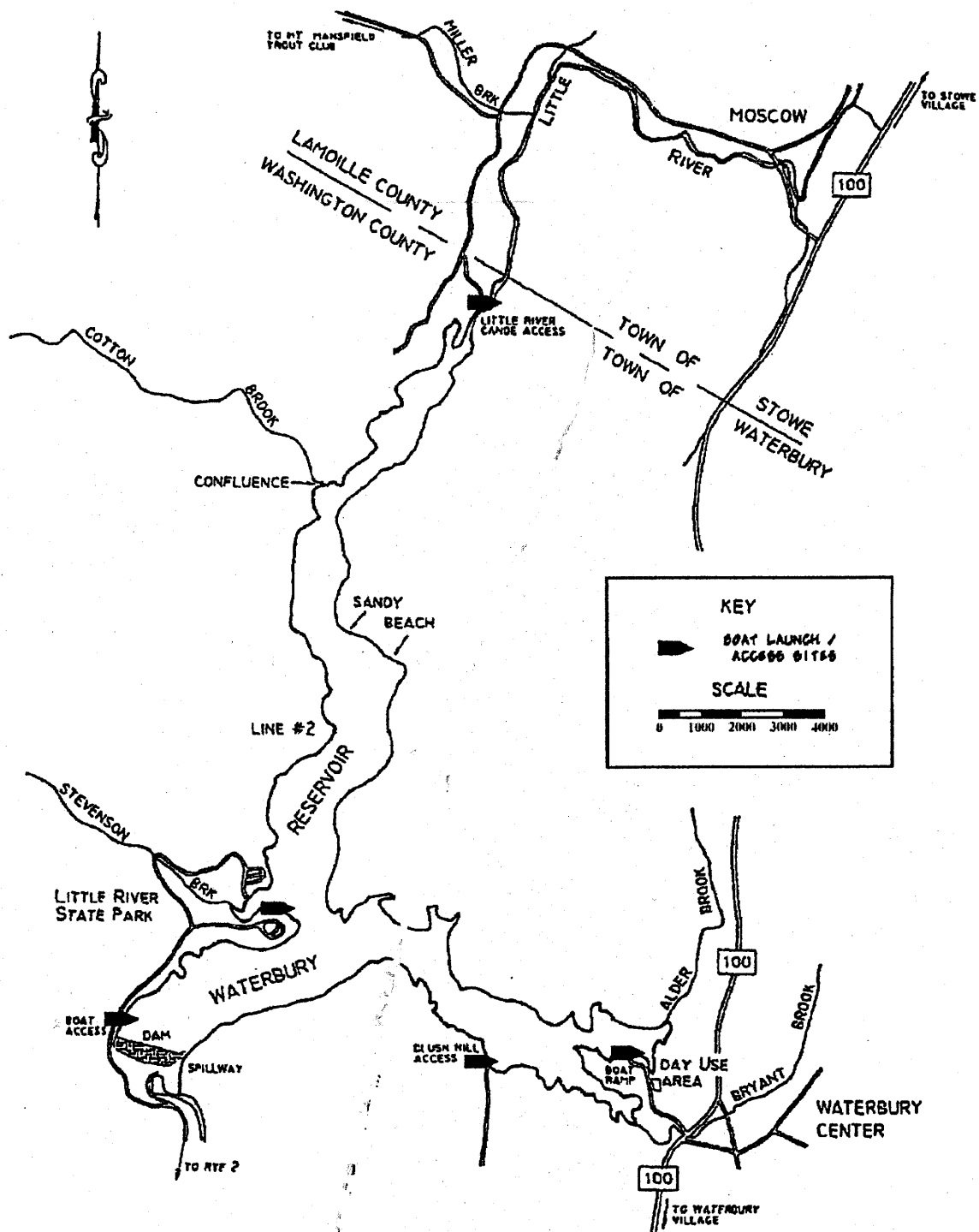


Figure E(5)-3 Boat launch/access sites at Waterbury Reservoir



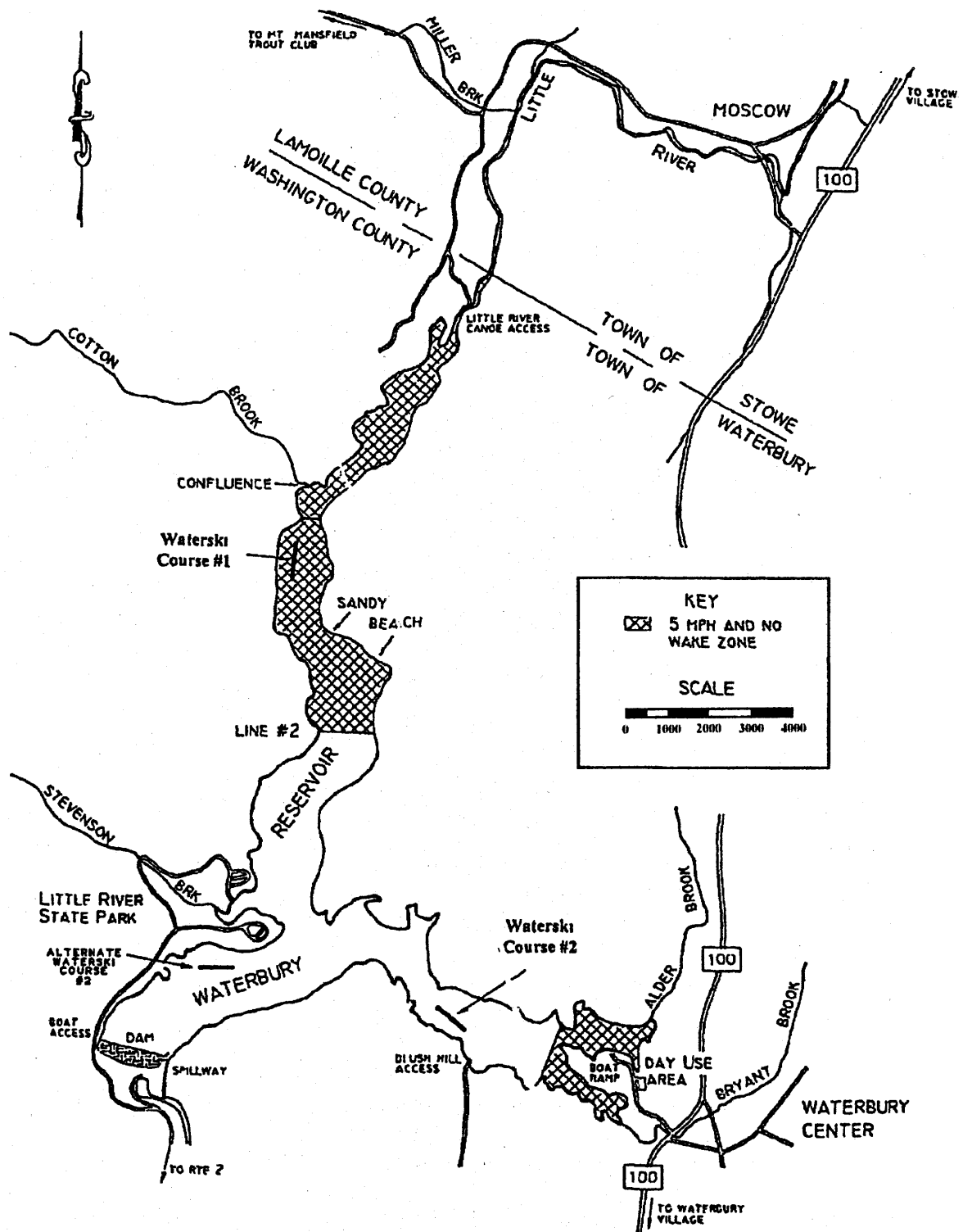


Figure E(5)-4 No wake and water-ski courses in Waterbury Reservoir

### Little River Shoreline

There are several existing recreational facilities adjacent to the Little River. A complete list of recreation facilities provided along the Little River below Waterbury Dam is contained in Table E(5)-2. The location of these facilities are shown on Figure E(5)-5.

**Table E(5)-2**  
**Little River Recreation Facilities**

Site #	Site Name	Description
LR12	Gate parking lot	Parking area near existing GMP gate
LR10	Bridge parking lot	Gated parking area near snowmobile bridge
LR7	Weir parking lot	Parking area near USGS Gauging Station
LR3	Parking lot	Parking lot across from Ranger's residence
LR2	Angler access	River access (road) south of Ranger's residence
LR1	Little River ford	River access (blocked) at river ford area

The Little River offers several launch and take-out areas along its 2.5 mile length. These areas are typically unimproved, consisting of a footpath from the Little River Road to the river. These footpaths also provide access for anglers.

Numerous trails run throughout the Mount Mansfield State Forest and in close proximity to the reservoir and river. A former snowmobile trail crosses the Little River approximately 0.5 miles downstream from the dam by means of a bridge. This trail and bridge is now used by hikers, bikers and cross country skiers.

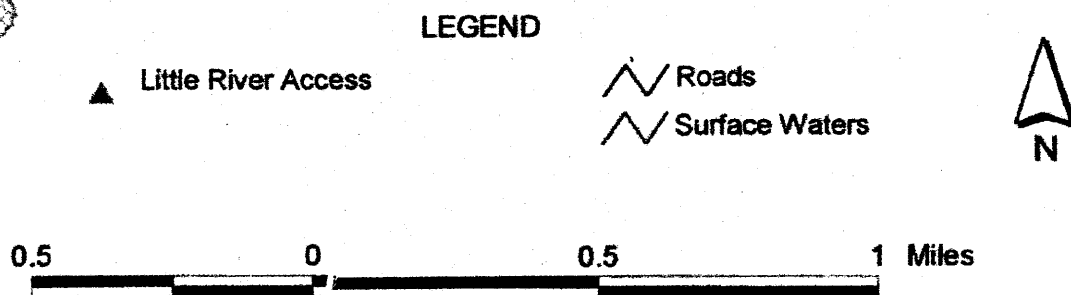
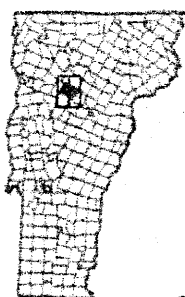
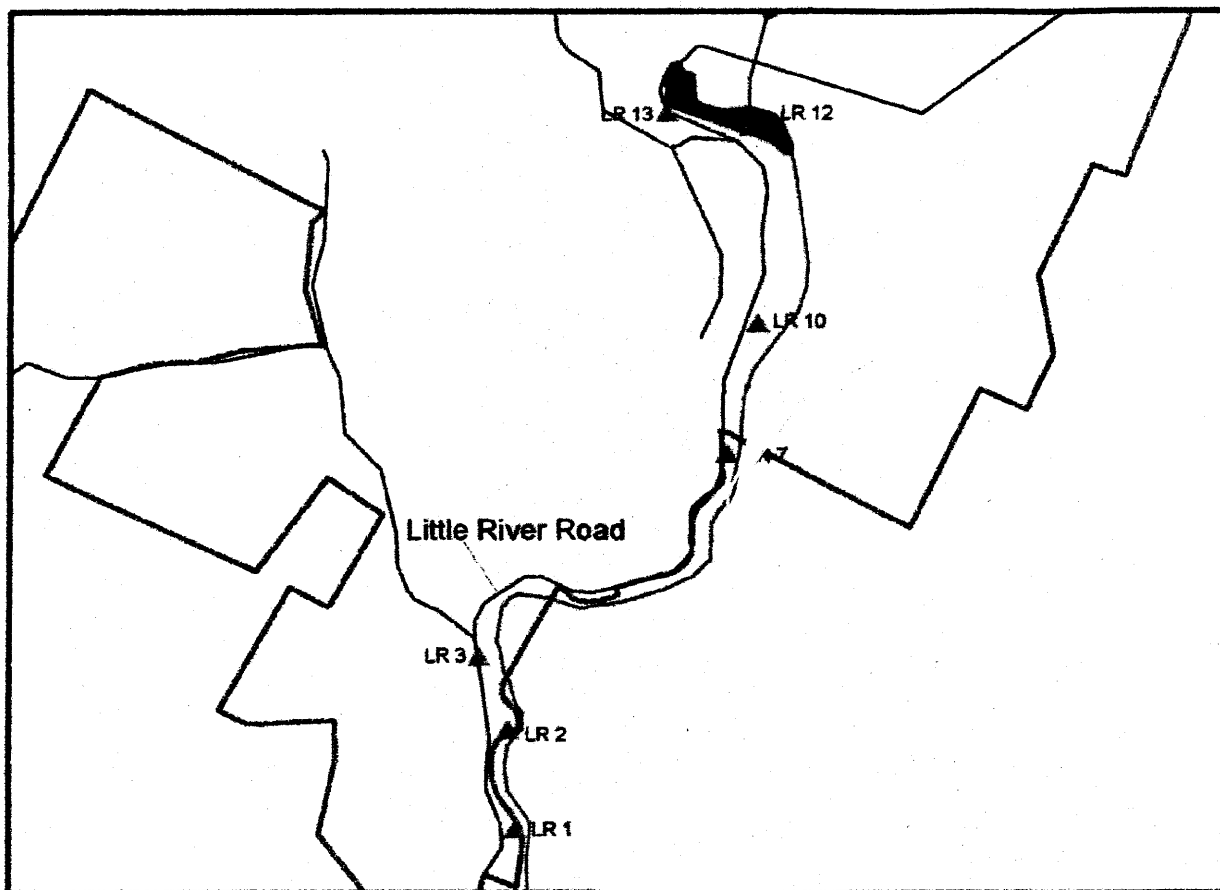
#### **(ii) Existing and Potential Recreational Use**

##### **(a) Existing Use**

#### Waterbury Reservoir

The spring/summer/fall recreation period at the Project occurs from May through October, as this coincides with the operation of the Little River State Park (Memorial weekend to Columbus Day). Recreational use data was collected from the two State parks which abut the Project, and from questionnaires mailed to "knowledgeable" individuals (biologists, park manager, water-skiers, State Police, commercial outfitters, etc.), and through observation and anecdotal information to estimate use of non-park facilities around the Project. Based on the collected data, total current use of recreation resources within the Waterbury Project study area is estimated between 66,078 and 75,195 recreation user days per year, with the majority of the use occurring on or adjacent to the reservoir.

There are two State parks at the Project: Little River State Park and Waterbury Center State Park. The Little River State Park includes overnight tent and lean-to sites and is operated from Memorial weekend through Columbus Day. Waterbury Center State Park is a day-use park and is operated from Memorial weekend through Labor Day weekend. Based on visitor attendance records kept for the parks, the total seasonal number of recreation visits to the parks in 1997 was 52,390 (Table E(5)-3).



Point data collected by E/Pro on contract with the Green Mountain Power Corp.  
 Remaining digital data supplied by the VT Agency of Natural Resources.  
 Digital data creation and map layout provided by the Information Management Services Department  
 of the VT Agency of Natural Resources - August, 1998.

Figure E(5)-5 Recreation access points on the Little River downstream of Waterbury Reservoir

**Table E(5)-3****Waterbury Project State Park Use During Open Season 1997**

	<b>Day Users</b>	<b>Overnight Users</b>	<b>Total</b>
Little River State Park	2,798	27,936	30,734
Waterbury Center State Park	21656	0	21,656
<b>Total</b>	<b>24,454</b>	<b>27,936</b>	<b>52,390</b>

**Note:** Actual State park use is higher than the above figure as they are also used when the parks are closed for the season.

Additional recreational use occurs on other State-owned property (remote campsites, boat launch, etc.), but no quantitative data exists as to amount of use at these sites. "Knowledgeable" individuals were surveyed to attempt to determine the number and type of non-park users on the reservoir. One State agency estimated total reservoir use was split 80% park use and 20% non-park use. Applying this ratio to the total use figure in Table E(5)-3 above would arrive at a non-park reservoir visitor figure of 10,478. Another agency estimated 200 bikers/hikers per week on the trail(s) adjacent to Cotton Brook in the north arm of the reservoir. Based on the Little River State Park season (20 weeks), this represents another 4,000 users in or adjacent to the study area. The total number of recreation user days by recreational activity at the non-park facilities is presented in Table E(5)-4. These figures are based on the non-park user figure of 10,478 provided by various knowledgeable individuals familiar with the Project and its uses. Because estimates of use provided by these individuals varied, a range of use was calculated based on the lowest and highest individual estimates. Based on the information provided, boating, fishing, and biking are the most popular activities in the project vicinity.

**Table E(5)-4****Estimates of Non-Park Yearly Recreation Use Associate with Waterbury Reservoir and Surrounding Lands, by Activity Type**

<b>Activity</b>	<b>Percentage (range)*</b>	<b>Total No./Activity/Year</b>
Boating**	55 to 90%	5,763 to 9,430
Fishing	15 to 50%	1,571 to 5,239
Water-skiing	8 to 25%	838 to 2,620
Camping	8 to 15%	838 to 1,571
Biking/hiking	not applicable	4,000
Swimming	5%	524
<b>Total</b>		<b>13,534 to 23,384*</b>

\* Percentages may exceed 100% and total number/activity/year may exceed total number on non-park users estimated above as users may participate in more than one activity per Project visit.

\*\* Boating includes power and non-powered craft.

Snowmobiling occurs near the Project, but not on Project waters because snowmobiles are banned from the reservoir. The primary winter activity is ice fishing, with cross-country skiing/snowshoeing and skating being secondary uses. No figures are available for other winter activities. The following ice fishing figures shown in Table E(5)-5 were provided by Vermont Fish & Wildlife for 1991 and 1992 reservoir use:

**Table E(5)-5****Ice Fishing Use on Waterbury Reservoir**

<b>Year</b>	<b>Angler Hours</b>	<b>No. of Anglers/5 Hr. Day</b>
1991	2,951.4	590
1992	3918.1	784

**Little River**

Though outside the Project boundary, the Little River is included within the study area due to the effects of Project operations on the river.

Primary activities along the Little River between the dam and confluence with the Winooski River are canoeing/kayaking and fishing. Other activities include hiking, biking, sightseeing and picnicking. The river can be divided into three distinct sections:

- Upper section - This extends from the dam to the USGS gaging station and consists of flatwater sections interspersed with some Class I/II whitewater sections. The degree of difficulty in the whitewater sections is dependent upon flows from the dam.
- Middle (gorge) section - This section begins immediately below the USGS gaging station and extends downstream a few hundred feet. This section is characterized by a narrow gorge with 20 to 30 foot vertical walls making access to the gorge difficult.
- Lower section - The lower section extends from the downstream end of the gorge to the confluence with the Winooski River. The river characteristics of the lower section are similar to those of the upper section.

The Little River provides beginner/intermediate level boating opportunities on a local/regional basis for both flatwater and whitewater boaters. Boating (canoe/kayak) occurs on the Little River but information detailing the number of boaters is not available. This lack of data was verified by two commercial outfitters who operate in the Waterbury area. Both outfitters suggest boating use on the Little River will increase due to a growth trend in the sport and if water release information for the river becomes readily available (e.g. scheduled releases, flow-phone). Hiking and other activities also occur along the entire river as evidenced by numerous access trails off the Little River Road to the banks of the river. Estimated recreational use on the Little River is shown in Table E(5)-6.

**Table E(5)-6****Recreational Users on the Little River**

<b>Activity</b>	<b>Total Number/Activity/Year</b>
Boating	unknown
Fishing*	208

\* Based on 250 angler hours per river mile (2.5 miles) and 3 hours per user.

Several winter trails for snowmobiling, cross-country skiing and snowshoeing are located along the Little River, and one former snowmobile trail crosses the river upstream of the USGS gaging station. No use figures are available for the Little River winter season.

(b) Projected Use

The recreation and travel industries are important to the quality of life and economic well-being of Vermont. Year-round recreational opportunities are readily accessible from any part of the state as well as from the major metropolitan areas of the Eastern seaboard. The public and private sectors have complemented each other in developing recreational resources and enhancing experiences (VANR 1994a). By the year 2000, the population is expected to grow approximately 8.5 percent from the 1990 projected population (VANR 1991). As a result, demand for lake recreation facilities and access are projected to increase in the future. Estimates of future recreational use were collected from the following sources:

- Warnick, R.B. 1994. *Outdoor recreation trends in the northeastern United States: 1979-1993, an update*. University of Massachusetts: Amherst MA. (Warnick Report)
- analysis of State Park user data
- review of several miscellaneous Vermont State recreation related reports and studies
- anecdotal information from knowledgeable individuals

The Warnick Report provides projections of regional (Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania) outdoor recreation activities based upon historical participation rates and user day trends from current and past surveys, and consideration of variables affecting participation in outdoor recreation activities. A summary of the report's projections is provided in Table E(5)-7.

**Table E(5)-7**

Projections of Recreation Use Changes in the New England Region<sup>1</sup>

Activity	Expected Annual Increase (%)
Developed camping	+0.14%
Primitive camping	+0.14%
Water-skiing	+0.07%
Swimming	-0.1%
Snowmobiling	+3.4%
Ice skating	-1.5%
Cross-country skiing	+6.5%

<sup>1</sup> Based on Warnick 1994

Using 1990 registration figures from Little River and Waterbury Center State Parks as base line figures, average annual overnight and day use from 1990 through 1997 show:

- overnight use at Little River State Park has increased by 0.3% on an average annual basis,
- day use at Little River State Park has increased by 0.72% on an average annual basis, and,
- day use at Waterbury Center State Park has increased by 2.94% on an average annual basis.

The State of Vermont has generated several reports and studies concentrating on recreational issues that include the following findings:

- ...long term trend, however, suggests camping will increase gradually (VANR 1994b).
- ...anticipated that as the population of Vermont grows, participation rates in riparian-related recreational activities also will rise, and additional areas for public use will be needed (VANR 1994b).
- ...boating, canoeing, swimming, jet-skiing, hiking, fishing... Trends show that most of these activities are increasing and will continue to do so (VANR 1994b).
- ...State Park visitation appears to be gradually increasing (VANR 1994c).
- ...a 13.5 % increase in boating registrations between 1988 and 1990, although the number of registered boats in 1992 declined to almost the same number of boats registered in 1988 (VANR 1994c).
- Interest and participation in winter sports such as snowshoeing, ice skating, and ice fishing...should be relatively stable and may increase slightly (VANR 1994c).

As part of the questionnaire sent to knowledgeable individuals, they were asked how the number of non-park users had changed over the past 5 to 10 years, and whether specific activities had increased, decreased, or stayed the same. Their responses are compiled in Table E(5)-8. Recreational use projections made by knowledgeable individuals for the Project area over the next ten years are listed in Table E(5)-9.

**Table E(5)-8**

Responses to "How has the number of non-park users changed over the past 5 - 10 years" and, "If answer is "Increased", list the activities that have increased and by what percentage"

Respondent	Increased	Decreased	About the same	Activities with increases
No. 1	x (significantly)			canoeing, jet-skiing, fishing, swimming, boating
No. 2	x			water-skiing (100%), remote camping (50%), boating (50%), mountain biking (300%)
No. 3	x			water-skiing, fishing
No. 4	x			kayaking/canoeing/boating (all 200% to 300%)
No. 5	x (moderately)			water-skiing (course use has increased 50 to 75%)
No. 6	x (reservoir)	x (Little River)		fishing (25% on reservoir)
No. 7			x (Little River)	

**Table E(5)-9****Projected Ten Year Trends in Recreational Use at Waterbury Project**

<b>Activity</b>	<b>Current Level</b>	<b>Projected Change (%)</b>	<b>Source</b>	<b>Projected Level</b>
Park camping	27,936	0.3% (annual)	State park	37,544
Park day use				
Little River	2,798	0.72% (annual)	State park	3,027
Waterbury Ctr.	21,656	2.94% (annual)	registrations	29,785
Lake boating	5,763 to 9,430	26% (5 years)	State report	9,149 to 14,971
Lake fishing	1,571 to 5,239	not available		1,571 to 2,620
Water-skiing	838 to 2,620	0.7% (10 years)	Warnick	844 to 2,638
Biking/hiking	4,000	4.5% (10 years)	Warnick	4,180
Swimming	524	-1.1% (10 years)	Warnick	518
Ice fishing	784	stable	State report	784
River boating	not available	increasing	outfitter	not available
River fishing	208	not available		208
<b>Total</b>	<b>66,078 to 75,195</b>			<b>87,610 to 96,275</b>

Total projected use of recreation resources at the Waterbury Reservoir for the year 2008 is estimated to be between 87,610 and 96,275 recreation user days. This is a total increase of approximately 21,000 recreation user days (30%) over current use.

**(iii) Description of Measures or Facilities Recommended by Agencies**

The agencies have not formally recommended any recreational enhancements. However, through consultation with various agencies, GMP is proposing various recreation enhancements. These proposed items are discussed in the following section (iv).

**(iv) Statement of Existing Measures or Facilities Proposed for Creating, Preserving, or Enhancing Recreational Opportunities**

GMP is proposing recreational enhancements for both the Little River below the powerhouse and the Waterbury Reservoir.

**Little River Enhancements**

Currently the access road leading to the Waterbury powerhouse is gated and locked. GMP is proposing that a new gate be installed a short distance up the road to provide better access for Little River users. Roadside parking will also be provided near the new gate. Trails and access points to the Little River below the powerhouse will be improved by stabilizing the existing trails. A take out facility for the Little River is also being proposed. This take out area will be located on state-owned land and would be in the river ford area. This area will also provide parking which will require some clearing, excavation, and gravel.

Another take out area is also being considered. This area is located on the right bank below the snowmobile bridge. It will be located next to an existing parking area for ease of access. Access to the river bank would be provided by installing natural stone steps so as to maintain the undeveloped character of the area.

GMP has agreed to expand its existing flow phone system to include the Waterbury Project, in addition to expanded warning signage.



### Reservoir Enhancements

There are two boat launch sites which GMP is proposing to improve as part of this license. They are located at the dam and Blush Hill. The parking lot and boat launch ramp at the dam will be improved by installing a concrete ramp and resurfacing the parking lot with gravel (or similar material).

At the Blush Hill site, a concrete plank boat ramp will be installed. In addition, another nearby parking lot may be rebuilt to provide additional off-site parking and help to resolve a problem of turning school buses at the end of the road. This site is maintained by the town and apparently owned by the state.. The Town of Waterbury and the state will be consulted before any proposed development of off-site parking is started.

An ADA accessible fishing platform is being proposed by GMP. A site for the platform has not been identified to date. The location and design of the fishing platform will be completed in consultation with the appropriate agencies.

The Moscow canoe access site is located at the north end of the reservoir. The primary concern at this site is erosion of the shoreline at the launch area. GMP is proposing to improve this access site by stabilizing/hardening the banks.

Any construction or improvements of recreational facilities will be completed so as to be operational by the 2003.